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LAGNIAPPE

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Aerospike engine arrives at Stennis for initial series of tests

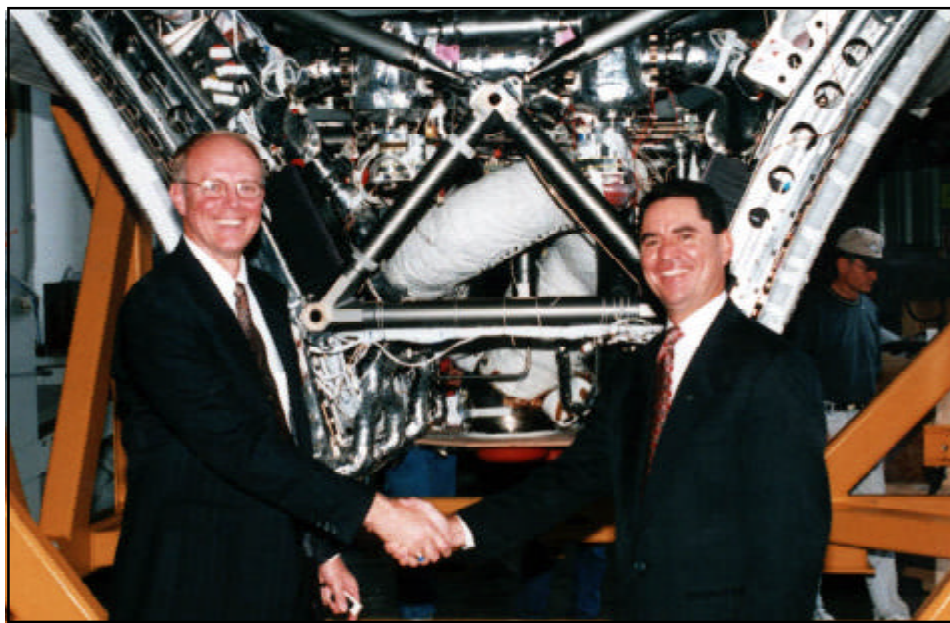
The first XRS-2200 Linear Aerospike Engine arrived at NASA's John C. Stennis Space Center July 10 and was officially handed over to center officials for testing July 13.

The aerospike engine was developed and assembled by Boeing Rocketdyne Propulsion & Power in Canoga Park, Calif. A 1970s version of the engine was last tested in 1972 at Santa Susana Field Laboratory in California. The test firing of this new engine marks the first time a linear aerospike engine will be tested at Stennis Space Center.

The engine will power the X-33, a half-scale technology demonstrator of a full-scale, commercially-developed, reusable launch vehicle, called VentureStar™, that is scheduled for development early in the next century. The X-33 is being developed under a cooperative agreement between NASA and Lockheed Martin Skunk Works of Palmdale, Calif. Marshall Space Flight Center in Huntsville, Ala., manages the X-33 program for NASA.

At a media briefing to introduce the new engine, remarks were made by Stennis Space Center's X-33 Project Manager for NASA, Steve Nunez, and Rick Hilscher, Boeing Rocketdyne Propulsion & Power's program manager for the aerospike engine.

"The arrival of the X-33's linear aerospike engine for testing at Stennis Space Center signifies the Agency's and industry's recognition of Stennis' expertise in propulsion



Rick Hilscher, Boeing Rocketdyne Propulsion & Power's X-33 program manager, left, officially hands over the engine to NASA's X-33 Project Manager Steve Nunez, right, during ceremonies marking the arrival of the first XRS-2200 Linear Aerospike Engine for testing at Stennis Space Center in Hancock County, Miss.

testing," Nunez said. "We are proud to be part of such an important element of the program."

The engine is the first of four engines scheduled to be tested by Stennis personnel beginning in the fall of this year. Two flight engines will be mounted on the X-33 after

successful testing at Stennis. Following initial testing, two development engines will be tested in the dual-engine configuration that the X-33 will use. The test program is scheduled to be completed prior to first launch of the X-33 in July 2000.

Hydrogen peroxide engine tested at SSC



A hydrogen peroxide engine was test fired at Stennis Space Center's E-3 test facility July 7. The developmental engine, being tested for Orbital Sciences Corporation (OSC), was fired during a gathering of OSC representatives to celebrate the completion of the first phase of the test program. The engine uses hydrogen peroxide as an oxidizer propellant. Inset, from left, NASA's Larry Ellis, deputy director of the Propulsion Test Directorate at Stennis Space Center, and Stennis Director Roy Estess discuss the hydrogen peroxide test program while awaiting the test.

LAGNIAPPE Commentary

We've come a long way ...

When Columbia takes off on mission STS-93, another first will go into the space flight book of records. U.S. Air Force Col. Eileen Collins will be Mission Commander of this important flight to deploy the third of NASA's Great Observatories into orbit. Collins will be the first woman astronaut to command an American space mission.

Collins emphasizes, however, that she is not the first woman commander to go into space. She graciously informs the public that Soviet cosmonaut Valentina Tereshkova-Nikolayev became the first woman commander in space in 1963.

A little over 38 years ago, May 5, 1961, Alan Shepard Jr. was the first American in space commanding his own one-person ship, Mercury capsule Freedom 7. During those early years of space exploration, every flight was a first of some kind, fraught with even more dangers and risks than our astronauts fly with today. There was no thought of sending a woman into space in any capacity.

"Manned space flight" became part of the NASA vocabulary and even part of the institutional and organizational structure of the Agency. "The Office of Manned Space Flight," and the "Manned Spacecraft Center," are just two terms that illustrate this point. A woman's place was not altogether in the home during those pioneering years, but the woman's lot was certainly not seen as blasting off into space. In fact, we would be hard put to count very many female engineers and scientists in our ranks during the early 1960s.

Contrast that "man's world" of years gone by with the achievements of women in today's space program. There have been 32 women to go into space aboard the Space Shuttle—27 of them career astronauts. The current astronaut corps of 136 has 29 women on its roster.

In 1965, there were 200 women working at the then Mississippi Test Facility. Of this number, we can't safely say even one was working as an engineer or scientist. I can recall a crackerjack woman welder and a technician who worked out in the test complex. Later, a female engineer was employed in the S-1C Complex. Even they were such an oddity that they made news!

Women were secretaries, clerks, nurses, mail carriers, telephone operators, cooks and librarians. They served important roles—in jobs that were absolutely necessary to carry out our mission of testing the Saturn V rockets for the Apollo program. In the 1970s, a few women came on board as scientists working with our environmental programs and in the Earth Resources Laboratory. Just look around today. We have women in top managerial positions, serving as test conductors and engineers and in science fields.

Much of this change at Stennis has come about because of the aggressive attitude of our director, who is very proud of our record in recruiting women whose skills and talents contribute even more to our organization.

Look around, it is certainly no longer a "man's world" in NASA and at Stennis. Perhaps that is why we talk about "human" space flight in the last days of this millennium.

M.R.H.



NASA NEWSCLIPS

Management changes made in Office of Space Flight—NASA Associate Administrator for Space Flight Joseph Rothenberg recently announced several management changes in the Office of Space Flight at NASA Headquarters in Washington, DC.

William Readdy, former director for Space Shuttle requirements, has been appointed Deputy Associate Administrator for the Office of Space Flight.

Michael Hawes, formerly NASA's chief engineer for the space station, has been named Deputy Associate Administrator for Space Development (Space Station).

Norm Starkey has been named Director for Space Shuttle Requirements.

NASA and USDA form partnership—A new partnership between NASA and the U.S. Department of Agriculture could result in updated maps of Yellowstone National Park, a better understanding of wildfires and improved management of California vineyards.

Under the partnership, NASA has selected 13 research proposals that will apply remote-sensing data — images of the Earth taken by satellites — to issues on the ground: forest mapping, soil studies, wildfires, range management, floodplain drainage and crop monitoring.

New satellite will slice through clouds—NASA will take a revolutionary, global look at clouds with a new spaceborne radar capable of peering deep into their interior to study their structure, composition and effects on climate.

Cloudsat, which will fly in 2003, will use an advanced radar to "slice" through clouds to see their vertical structure, providing a completely new observational capability from space — current weather satellites can only image the uppermost layers of clouds. Cloudsat will be the first satellite to study clouds on a global basis.

NASA's Jet Propulsion Laboratory in Pasadena, Calif., will manage the international mission, which will include participation from the United States, Canada, Germany and Japan.

First female commander leads STS-93 crew

The Space Shuttle Columbia at press time was scheduled to launch at 11:28 p.m. CDT July 22 from Pad 39-B at the Kennedy Space Center in Florida.

STS-93 will be the first shuttle mission commanded by a woman, Air Force Col. Eileen Collins, who has served as pilot on two previous shuttle missions.

Columbia will carry the Chandra X-ray Observatory into low-Earth orbit, initiating its planned five-year astronomy mission. Chandra is the third of NASA's Great Observatories, following the Hubble Space Telescope and the Compton Gamma Ray Observatory. Chandra will provide scientists an order-of-magnitude improvement over current capabilities at X-ray wavelengths. Observations of X-ray emissions from energetic galaxies and clusters, as well as black holes, promise to greatly expand current understanding of the origin and evolution of our universe.

The four-day, 23-hour flight of Columbia is scheduled to land at Kennedy Space Center at 10:31 p.m. CDT, July 24.

Crew:

Eileen Collins, Mission Commander
Jeffrey Ashby, Pilot

Mission Specialists:

Steven Hawley
Catherine Coleman
Michel Tognini
(French Space Agency)



Stennis marks 30th anniversary of Apollo 11

Stennis Space Center recognized the 30th anniversary, July 20, of an event that changed the history of the world — the fantastic flight of Apollo 11 to the Moon in 1969 — an event that could not have happened without the help of a small Mississippi test facility.

Millions of people all over the world watched, listened and held their breath that day until they heard the clear report from 239,000 miles in space, "Houston, Tranquility Base here. The Eagle has landed."

"I awakened my small children to see Armstrong step on to the Moon's surface, we knew that it was a huge historical event worth all the long days and nights and lost weekends," said Roy Estess, director of Stennis Space Center, who was a 30-year-old test engineer for NASA at the time of

Apollo 11. "I was just lucky to be born at the right time and be in the right place to be a part of one of humankind's greatest achievements."

At the time, few people outside of Mississippi realized that the small NASA facility located in Hancock County played such a vital role in getting Americans to the Moon. The first and second stages of the Saturn V vehicle, that lifted Neil Armstrong, Edwin "Buzz" Aldrin, and Michael Collins to the Moon, were tested and proven flightworthy by dedicated engineers, scientists and professionals who worked at the site, then called the Mississippi Test Facility.

The mission plan of Apollo 11 was simple, "Perform a manned lunar landing

See APOLLO 11, Page 8

Stennis Space Center conducts first 250k test

The first test of a new, 250,000-pound thrust hybrid rocket motor was conducted at Stennis July 9.

This test also marked the first, full-scale hot fire test at the E-1 Test Facility since initial construction began in 1988.

The motor resembles the solid rocket boosters used on the Space Shuttle. It is 70 inches in diameter, about 45 feet long, and weighs 125,000 pounds.

The motor uses a solid fuel that is mixed and then poured into the casing of the motor and allowed to set and turn into a rubbery, semisolid form—similar to how gelatin is mixed, poured and allowed to set until it becomes almost solid. To ignite the motor and continue the process of ignition during its flight, an oxidizer must be injected into the core of the motor. The oxidizer must continually be fed into the motor as long as the motor is required to function. When the flow of oxidizer stops, the motor shuts down.

The hybrid rocket motor being tested at Stennis is also environmentally safe. According to the NASA Environmental Office at Stennis, an environmental assessment was conducted that reviewed the possible impacts of testing the 250,000-pound thrust motor at Stennis Space Center.

"The environmental impacts identified in the environmental assessment are rocket motor exhaust emissions and short term noise," said NASA's Jennette Gordon, an environmental specialist at Stennis. "Short-term noise only impacts activities close to the test stand, and due to our buffer zone does not impact local communities."

The test, which was conducted on the center's E-1 test facility, was scheduled to run for 15 seconds. But, due to a problem with the ignition system, the test was cut short after firing for about five seconds.



A 250k hybrid rocket motor was tested for the first time at Stennis July 9. This also marked the first, full-scale hot fire test at the E-1 Test Facility since initial construction began in 1988.

See 250k, Page 8

Glenn's return to space helps unravel mystery

The high-speed portion of the solar wind achieves its unexpectedly high velocity — up to 500 miles per second — by “surfing” magnetic waves in the Sun’s outer atmosphere, according to observations made by two spacecraft during John Glenn’s return to space Oct. 29, 1998.

For 37 years, solar scientists have been puzzled by the fact that the high-speed solar wind travels twice as fast as predicted by theory. Observations and theoretical analyses have discovered a surprising explanation for this mystery: magnetic waves. The observations were made using instruments aboard NASA’s Spartan 201 spacecraft, deployed from the Space Shuttle during the STS-95 mission, and the international Solar and Heliospheric Observatory (SOHO).

The outermost solar atmosphere, or corona, is an extremely tenuous, electrically charged gas that is seen from Earth only during a total eclipse of the Sun by the Moon, when it appears as a shimmering white veil surrounding the black lunar disk. Using Spartan and SOHO, scientists have detected rapidly vibrating magnetic fields within the corona that form magnetic waves that appear to accelerate the solar wind.

“These vibrating magnetic waves give solar wind particles a push, just like an ocean wave gives a surfer a ride,” said Dr. John Kohl, a senior astrophysicist at the Smithsonian Astrophysical Observatory in Cambridge, Mass., and the principle investigator for ultraviolet spectrometers aboard SOHO and the Spartan 201.

The electrical charges of solar wind particles, or ions, force them to spiral around invisible magnetic lines in the corona as they rush into space. When the lines vibrate, as they do in a magnetic wave, the spiraling ions are accelerated out and away from the Sun. The presence of magnetic waves in the corona was inferred by observing the motions of these solar wind ions.

The observations also will help scientists better understand solar regions called coronal holes.

The SOHO mission is sponsored by NASA and the European Space Agency. This research was published in the June 20 edition of the *Astrophysical Journal*.

Images to support this story are available on the Internet at:

<FTP://PAO.GSFC.NASA.GOV/newsmedia/SWIND>

Director's Dialogue

*from Center Director
Roy Estess*



Employee Performance Planning and Assessment

At this time of year, we assess each employee’s performance for the past year and establish his or her performance plan for the year to come. This is an important process because it brings supervisors and employees together to develop a plan and set specific expectations for meeting it, and then later assess progress against those expectations. The heart of the process is a continuing two-way communication between supervisor and employee. Earlier this year, the Diversity Dialog Groups (DDGs), chartered to recommend center improvements, identified employee performance planning and assessment (PP&A) as a key area for attention. From the DDG recommendations and from other center improvement initiatives, we have taken several steps.

Recently, the center initiated a requirement that all supervisors take continuing management education each year. A component of that training is now required to be PP&A. The first group of supervisors and some team leads completed the PP&A class several weeks ago.

With supervisors properly trained, a critical element of PP&A is aligning each of our performance plans with the direction in which NASA and the center are going. For the Stennis Implementation Plan, we are currently developing Stennis goals in response to NASA and Strategic Enterprise strategic plans. To ensure flowdown of these goals into our performance plans, we have acquired the Kennedy Space Center-developed Goal Performance Evaluation System (GPES), which we plan to implement for the 1999-2000 performance period. This software will capture NASA, Enterprise and Stennis goals and will contain a menu of derived “major responsibilities” and “specific duties/performance expectations” that can be clicked into each of our plans, as appropriate. GPES allows employee input throughout the year on accomplishments against the plan. Larry Ellis is leading a cross-organization team to implement and deploy GPES by August.

As we implement this important communication and planning tool, I ask for your help, input and patience. It will only be as good as we as a team make it!

New challenges set for Discovery Program

The first comprehensive mission to map Mercury and a radical mission to excavate the interior of a comet have been selected as the next flights in NASA’s Discovery Program.

The Mercury Surface, Space Environment, Geochemistry and Ranging mission, or Messenger, will carry seven instruments into orbit around the closest planet to the Sun. It will send back the first global images of Mercury and study its shape, interior and magnetic field.

The Deep Impact mission will send a 1,100-pound copper projectile into comet P/Tempel 1, creating a crater as big as a football field and as deep as a seven-story building. A camera and infrared spectrometer on the spacecraft, along with ground-based observatories, will study the resulting icy debris and

pristine interior material.

Messenger, to be launched in spring 2004, will be NASA’s first mission to Mercury since the Mariner 10 flybys in 1974 and 1975, which provided information on only half the planet. Its challenging flight plan begins with two Venus flybys, then two Mercury flybys in January and October 2008 and a subsequent orbital tour of Mercury beginning in September 2009.

Among Messenger’s goals will be to discover whether Mercury has water ice in its polar craters. It will be built and managed by the Johns Hopkins University’s Applied Physics Laboratory in Laurel, Md.

Further information about the mission is available on the Internet at: <http://sd-www.jhuapl.edu/MESSENGER>



1999 Snoopy Award Winners



Bartt Hebert
NASA/Propulsion Test Directorate

Ten Stennis Space Center employees were honored June 24 with the astronaut corps' own personal achievement award, the "Silver Snoopy" including NASA's Steven Baggette, Anita Douglas and Bartt Hebert.

The Silver Snoopys were personally presented by astronauts Pamela Melroy and Thomas Jones.

The Silver Snoopy Award recognizes individuals for professionalism, dedication and outstanding support that greatly enhances flight safety and mission success in the Space Shuttle program.

The Silver Snoopy Awards program was initiated 30 years ago and represents the astronauts' recognition of excellence. Each honoree received a silver pin flown aboard STS-88, a letter of commendation and a certificate.



Anita Douglas
NASA/Human Resources and Management Services



Duane Donner
Johnson Controls World Services Inc.

Pictured above from left are astronaut Pamela Melroy; Dale Larson, Lockheed Martin Stennis Operations; Steven Baggette, NASA's Propulsion Test Directorate; Michael Jones, Boeing Rocketdyne Propulsion & Power; Wayne Welk, Lockheed Martin Stennis Operations; Basab Mukerji, Boeing Rocketdyne Propulsion & Power; William Davis, Boeing Rocketdyne Propulsion & Power; and astronaut Thomas Jones.



Donna Lossett
Johnson Controls World Services Inc.

Fifth Annual Safety Day Award held at Stennis Space Center

Stennis held its fifth annual Stennis Space Center Safety Day Kickoff June 24 in the Visitors Center Auditorium.

During the program, which emphasized that safety should not be the focus for just one day, but rather the entire year, two groups at Stennis were recognized for their outstanding safety record.

Johnson Controls World Services Inc. received a plaque for 748,000 hours of no lost-time injuries from July 1998 through March 1999. Boeing Rocketdyne Propulsion & Power received a plaque recognizing one million hours of no lost-time injuries or accidents from April 1997 through April 1999. Tom Muchow, deputy general manager of Johnson Controls World Services Inc., and Dave Geiger, Boeing Rocketdyne Propulsion & Power's site director and director of propulsion test programs at Stennis, accepted the awards on behalf of their companies.

NASA's John Gasery, chief of the Safety and Mission Assurance Office, was emcee for the ceremony. Remarks and presentation of awards were made by Stennis Space Center Deputy Director Mark Craig.



Pictured left, Johnson Controls World Services Inc. deputy general manager at Stennis Tom Muchow, right, accepts a plaque for 748,000 hours with no lost-time accidents between July 1998 and March 1999 from Stennis Deputy Director Mark Craig. Pictured below, Dave Geiger, Boeing Rocketdyne Propulsion & Power's site director and director of propulsion test programs at Stennis and fellow managers were recognized for achieving one million hours with no lost-time accidents from April 1997 through April 1999. Geiger is pictured second from left and John Gasery, chief of NASA's Safety and Mission Assurance Office at Stennis, is pictured far right.



Stennis employees reminded to always buckle up on the road

While most newer motor vehicles today are equipped with Supplemental Restraint Systems (SRS), known simply as airbags, they cannot protect you in a collision if you are not wearing your seat belt as well. They may even cause a fatal injury if you are not buckled up properly.

Just imagine being struck in the face by an inflating airbag that's coming at you at a speed of nearly 200 mph. It is enough to break your neck, facial bones, or at the very least, induce severe chest, head, or disfiguring facial trauma. Airbags are not a substitute for your seat belt! They are



See BUCKLE UP, Page 10



Children from Mississippi and Louisiana participating in Astro Camp at Stennis Space Center send their model rockets, complete with payloads, into the sky over the center. The campers were participating in one of the annual five-day camps that encourages enthusiasm for math, science and technology to prepare future explorers. (See story, Page 7)

Zanoni faces challenges with a smile and determination

Looking back, NASA engineer Vicki Zanoni said it was during a summer workshop at Michigan Tech University that the idea of making a career in the field of science and math hit home. "While I was still in high school, I attended a summer program at MTU about women's roles in engineering," Zanoni said. "That's when I knew what I wanted to do. I knew engineering would be tough and I wanted to pursue a career that would be a challenge. I didn't want to be bored."

In the fall of 1989, she returned to Michigan Tech as a student majoring in mechanical engineering. She graduated with honors and attracted NASA's attention through the Commercial Remote Sensing Program (CRSP) at Stennis Space Center. "I got a phone call from NASA Human Resources telling me about a job at a space center in Mississippi," she said as she recalled that day five years ago.

Zanoni, a native of Michigan's Upper Peninsula, born in the green and gold country of the Green Bay Packers, only knew Hancock County as the home of Packer star, Brett Favre. "Something told me that beyond the opportunities of work, coming here would be a chance to prove my independence. So, I grabbed it."

Prove herself; she has — on many levels. Professionally, as a 'fresh out' (of college), she joined the Commercial Remote Sensing Program at Stennis and now

"It is exciting and rewarding to be part of a technology that has such tremendous potential."

Vicki Zanoni



serves as Project Coordinator of the Virtual Product Laboratory (VPL).

The VPL enables design and verification of remote sensing systems within a virtual (computer-based) environment. The VPL will serve industry, government and university communities by providing a means to conduct system trade studies, optimization, visual modeling and data product simulations entirely in a virtual environment.

"The VPL can be used as a complete end-to-end study tool capable of creating system and subsystem performance characterizations, system optimization, and simulated data products or as a means of evaluating any one component of a remote sensing system without actually having that system in place," Zanoni said. The VPL environment enables companies to test an idea before a system is actually built.

"The people here at CRSP welcomed me," she said. "They made me feel right at home."

SSC Employee Profile



"Vicki's can-do attitude is an inspiration to us all," said David Brannon, Program Manager of Stennis' Commercial Remote Sensing Program. "She has taken on some very difficult challenges for the program and has represented the Agency in a most accomplished manner."

Although she misses her family back in Michigan, Zanoni is happy with the choice she made in moving to Mississippi. She has established a home in Long Beach and has developed a sense of family and community in her friends and church. Zanoni is also pursuing a master's degree in industrial engineering through Mississippi State University.

Looking ahead, Zanoni said the future is wide open for NASA and the role of Commercial Remote Sensing is only going to become greater. "The companies we work with are excited about being involved with NASA. They are eager to find ways to help NASA do its job, and help their businesses grow as well. It is exciting and rewarding to be part of a technology that has such tremendous potential. I'm anxious to see how remote sensing will change the way people look at the world."

Astro Campers get a little help launching their futures at Stennis

Children from Louisiana, Mississippi, Alabama, and even as far away as Texas are participating in Astro Camp at Stennis.

Astro Camp is an annual, five-day series of day camps for 7- to 12-year-olds who participate in hands-on activities, such as building and launching model rockets and a simulated International Space Station mission. This year, four camps are being held at Stennis Space Center, and two camps were held earlier at Lynn Meadows Discovery Center in Gulfport.

This year's curriculum, themed, "Star Station One™," is geared to teach campers about the International Space Station. The Stennis Visitors Center is one of only 60 museums in the country chosen to participate in the Star Station One™ program, which is sponsored by the Boeing Co.

During the camp, participants learn

about space, and then put that new knowledge to work by constructing sophisticated tetrahedron kites using ordinary drinking straws and string, a solar oven in which to bake apple turnovers, as well as a model of a space station using styrofoam, paper cups and aluminum foil. They also build and decorate their own model rockets that they launch on the last day of the camp.

"My favorite thing that we've done at camp was building the rockets," Michael Reeves, 9, of Mandeville, La., said. "It was fun to launch them."

Campers also took a field trip to the Daily Living Science Center in Kenner, La., where they were among the first groups to tour a life-size replica of the International Space Station.

"So far, the camps this year have been the best we've had," said Maria Lott, director of Astro Camp. "The kids are very

literate about space and science and know all about the International Space Station."

"Maybe some of this year's campers will one day become Space Station residents, or enter some other space-related career as a result of their experiences at Stennis' Astro Camp," Lott said.

NASA's Stennis Space Center's primary responsibilities are to test rocket engines such as the Space Shuttle Main Engine, as well as developing space technologies such as remote sensing to improve everyday life.

Registration begins in February for Astro Camp 2000. Reservations must be made for children to attend the camp and are taken on a first-come, first-served basis.

For more information about Astro Camp, call 1-800-237-1821 (select option 1) in Louisiana and Mississippi, or (228) 688-2370.

APOLLO 11...

(continued from Page 3)

and return." At 8:32 a.m. CDT, on July 16, 1969, the 365-foot tall, 36-story Saturn V launch vehicle, with three men squeezed inside a small capsule at the top, spewed forth flame and smoke, exactly as tested in Mississippi, and leapt into the bright, sunny morning sky headed for the Moon.

Four days later, Armstrong and Aldrin entered the lunar module, Eagle, and descended to the surface of the Moon. The landing was far from routine — it was high drama, unequaled in the history of flight. People all over the world listened, in real time, as the astronauts descended to the surface. Armstrong steered the spacecraft away from a rock-strewn landing site toward an open, flat patch of moonscape, while Aldrin called out velocities and heights as surface dust swirled into view. Minutes later, the Eagle had landed.

At 9:56:19 p.m. CDT, Armstrong placed his foot on the Moon as he stepped off the lunar module. "That's one small step for man, one giant leap for mankind," he said.

Aldrin joined Armstrong minutes later, and the pair spent more than two hours planting an American flag on the surface, taking photographs, collecting rock and soil samples and deploying scientific instruments.

Twenty-one hours, 36 minutes after landing, Armstrong and Aldrin left the surface of the Moon in the ascent stage of Eagle, lifting off at 12:54 p.m. CDT July 21. After joining Collins in the Moon-orbiting command module, Columbia, the Apollo 11 crew set out for home. Columbia splashed down in the Pacific Ocean at 11:50:35 p.m. CDT on July 24. President Richard Nixon was aboard the recovery ship the U.S.S. Hornet to greet the Moon explorers.

The NASA and contractor team in Mississippi and their Gulf Coast neighbors didn't get to join in the big celebrations for Apollo 11. Before the astronauts were finished with their debriefings, a hurricane called Camille was brewing in the Gulf of Mexico. She would strike the Mississippi Gulf Coast Aug. 17 with unprecedented death and destruction.

The Mississippi Test Facility turned



into a shelter and took care of 1,200 refugees — employees, their families and area residents.

Since the Moon landing 30 years ago, what has since become the John C. Stennis Space Center has gone through the ups and downs common in any industry, private or governmental.

When the Apollo program ended in the early 1970s, the total number of personnel at the center dropped, but with the foresight of a few people at the site, a unique federal city was born. This new city included several federal and state agencies involved in space, environmental and oceanographic research.

Along with the formation of a new role for the facility came a new assignment to test and certify for flight the engines for a new spacecraft — the reusable Space Shuttle. That assignment continues to affect the center's future as the nation's premier rocket testing center.

A number of present employees grew up in the communities surrounding Stennis during the days of Apollo and drew their inspiration from the "test facility" in Hancock County. Still others are following in the footsteps of their parents and grandparents who were part of that great adventure.

250k...

(continued from Page 3)

"Approximately one-third of the way through the planned duration, an anomaly was observed in the vicinity of the oxidizer injector of the test article, and the test was safely terminated per procedure," said NASA's Robert Bruce, project manager of the Hybrid Propulsion Demonstration Program 250k testing at Stennis Space Center. "The analysis of data is underway to determine the reason for the shutdown. Preliminary data indicates the ignition system Special Test Equipment will be our primary focus."

The test team at Stennis hopes to resume testing within three weeks on motor number two.

This was the first of several tests that will be performed on two separate motors. The tests will demonstrate two different methods of ignition, as well as different methods of injecting the oxidizer.

The motor was designed and constructed by a consortium of aerospace corporations. Companies involved in the consortium are: Lockheed Martin Astronautics, Boeing Rocketdyne, Lockheed Martin Michoud Space Systems, Thiokol Corporation and United Technologies Chemical Systems Division.

Atlanta schools learn about remote sensing

Where is the best place to learn how to integrate remote sensing technology into the classroom?

That was the question that representatives from the Atlanta Public Schools faced when planning a week-long workshop on how to introduce remote sensing to the students of Atlanta. The answer to that question is simple: Stennis Space Center, NASA's lead center for commercial remote sensing.

The idea for the workshop came during a strategic planning session held by the Atlanta Public Schools Urban Systemic Initiative last summer at Stennis' electronic Strategic Planning and Consensus Engagement (e-SPACE) Collaboratory. The group met to discuss how to help children in the Atlanta area become better achievers in math and science.

With the help of a five-year grant from IBM, the group arranged for 30 elementary and middle school teachers and technology coordinators to visit Stennis and have the opportunity to learn first-hand about remote sensing.

The visit was coordinated by the NASA Educator Resource Center at Stennis. While at the center, June 22-25, the group received an overview of the Commercial Remote Sensing Program Office; an introduction to Scion Image Analysis Software; and a tour of Building 1210, where they saw remote sensing technology being applied in the workplace.

The information learned at Stennis will be implemented in schools throughout Atlanta.

NASA's Education and University Affairs Office at Stennis has plans to replicate this workshop for school districts within Mississippi.



Nine students from Florida A & M University, Spelman College, Seattle University and the University of Puerto Rico participated in this summer's NASA Scholars program at the John C. Stennis Space Center. The NASA Scholars Program focuses on women, minorities and disabled achievers who are interested in science and engineering careers, with a goal of increasing the number of under-represented minorities in the fields. NASA Scholars participants along with their mentors are (front row, left to right) Glenn Ledbetter; Jocelyn Bush; mentor Shawn Keller, a NASA electrical engineer; Robin Jackson; Carmen Harris; and Damon Brown. (Back row) Antonio Pego, a NASA electronics engineer; Noel Riviera; Jose Del Toro; mentor Bill St. Cyr, chief of NASA's Test Technology branch; Chad Quall; Brian Schwenka; and mentor Barry Robinson, NASA aerospace engineer.

Pictured from left, Petty Officers Matthew Hoag and Carl Bunch with the Navy's Special Boat Unit 22 at Stennis Space Center speak with Cub Scouts and leaders during the annual Cub Scout Day camp held at the center. Ten troops from Hancock, Pearl River and Stone counties in the Tung Belt District were represented. Hoag, Bunch and Chief Jesus Flies spoke to the Scouts about the job the unit performs in the military as well as the importance of getting a good education, combating peer pressure and avoiding alcohol and drugs.



Safety Corner

Information
provided by
NASA's
Safety Reliability
and Quality
Assurance
Office

Cell phones can cause hot problems near gasoline fumes

There was an incident recently where a driver suffered burns, and his car was severely damaged. Gasoline fumes ignited an explosion while the driver was talking on his mobile phone while standing near the attendant who was pumping the gas.

All the electronic devices in gas stations are protected with explosive containment devices, while cell phones are not.

READ YOUR HANDBOOK! Mobile phone makers like Motorola, Ericsson, and Nokia, all print precautions in their user handbooks that warn against mobile phones in "gas stations, fuel storage sites, and chemical factories."

Exxon has begun placing warning stickers at its gasoline stations. The threat mobile phones pose to gas stations and their users is primarily the result of their ability to produce sparks that can be generated by the high-powered battery inside the phone.

QUICK LOOK

■ **The Wellness Center's Lap Pool** is open from 6 a.m. to 6:45 p.m. Monday through Friday. For more information, call the Wellness Center at Ext. 3950.

■ **Stennis Space Center's Center of Higher Learning** announces fall registration for college classes held on site. Mississippi State University and the University of Southern Mississippi registration will be held Aug. 11. The University of New Orleans registration will be held Aug. 3 and Aug. 17. Pearl River Community College registration for new students will be held Aug. 11 at the Poplarville campus and via telephone for continuing students. Registration for all universities will be held from 10 a.m. until 1 p.m. in Building 1103. For more information, contact Keith Long at Ext. 7662.

■ **Environmental Explorer Troop advisors are needed.** The Hancock County Chamber Environmental Committee is trying to identify adults willing to serve as advisors to a new Environmental Explorer Troop. Even though this is a Boy Scout program, both young ladies and men ages 14 to 21 will be participating. Both men and women advisors are needed. You need to be able to meet at least monthly with the troop and be willing to participate in periodic activities at other times during the year. If you would like to volunteer as an advisor or need more information, please contact Ron Magee, NASA's Environmental Officer and the Chairman of the Hancock Chamber Environmental Committee at (228) 688-7384.

BUCKLE UP...

(continued from Page 6)

designed specifically to augment the seat belt, not to replace it. When used properly together, this combination of safety devices will significantly reduce your chance of serious injury in a frontal collision. Granted, driver and passenger-side airbags are not much help in a side collision or rollover, and may not even deploy, but your seat belts will hold you in place. They prevent you from being thrown violently against the interior of the vehicle, or worse — being ejected.

In 1997, President Clinton signed Executive Order 10343, Increasing Seat Belt Use in the United States. This order mandates the use of seat belts when operating any vehicle in national parks and on Department of Defense installations. In the interest of the personal safety of all our NASA civil service and contractor employees, NASA Administrator, Daniel Goldin, has proclaimed that this presidential order applies to all NASA centers as well. Our center director has, of course, also endorsed this safety policy. In addition to this policy, Mississippi state law also requires use of seat belts by, at a minimum, all front-seat passengers of any vehicle, while that vehicle is in motion.

It takes just a minute to fasten your seat belt before driving, and it certainly makes sense. A marked increase in the use of seat belts has been observed at Stennis during the past two years. Security will continue to enforce the use of seat belts at Stennis Space Center for all employees, visitors, and thru-site drivers. Please buckle up for safety's sake.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration. Roy Estess is the center director, Myron Webb is the public affairs officer, and Lane Cooksey is the news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 208, Stennis Space Center, MS 39529, or call (228) 688-3583.

EDITOR:.....Sharon Koenenn Saucier

CONTRIBUTING WRITERS:

Robert Collins.....Betty Ruth Hawkins
Mary Mabins.....Courtney Thomas

CONTRIBUTING PHOTOGRAPHER:

Mike Badon.....Charles Jones

ARTIST:.....Douglass Mayberry



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Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529

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